The Fallacy around Inserting Brackets to Evaluate Expressions Involving Multiplication and Division

Authors : Manduth Ramchander

Abstract : Evaluating expressions involving multiplication and division can give rise to the fallacy that brackets can be arbitrarily inserted into expressions involving multiplication and division. The aim of this article was to draw upon mathematical theory to prove that brackets cannot be arbitrarily inserted into expressions involving multiplication and division and in particular in expressions where division precedes multiplication. In doing so, it demonstrates that the notion that two different answers are possible, when evaluating expressions involving multiplication and division, is indeed a false one. Searches conducted in a number of scholarly databases unearthed the rules to be applied when removing brackets from expressions, which revealed that consideration needs to be given to sign changes when brackets are removed. The rule pertaining to expressions involving multiplication and division was then extended upon, in its reverse format, to prove that brackets cannot be arbitrarily inserted into expressions involving multiplication and division. The application of the rule demonstrates that an expression involving multiplication and division can have only one correct answer. It is recommended that both the rule and its reverse be included in the curriculum, preferably at the juncture when manipulation with brackets is introduced.
Keywords : brackets, multiplications and division, operations, order
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020